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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/590,851

11/13/2006

George E. White

19667-0028

4158

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10/01/2009

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EXAMINER

GLENN, KIMBERLY E

ART UNIT

PAPER NUMBER

2817

MAIL DATE

DELIVERY MODE

10/01/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/590,851 | Applicant(s) WHITE ET AL. | |
| | Examiner KIMBERLY E. GLENN | Art Unit 2817 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5,6,8-10,12 and 15-24 is/are rejected.
- 7) ☐ Claim(s) 2 4 7 11 13 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/25/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 8/25/06 was filed. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 16-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 16 recites the limitation "the LCP layer" in lines 4, 5, 9 and 10. There is insufficient antecedent basis for this limitation in the claim.

In line 14 of claim 21, applicant recites "integrated components". How do these components related to 'the integrated components' disclosed in line 7 of the claim?

In line 15 of claim 21, applicant recites "at least a first filter and a second filter". How do these filters related to the 'at least a first filter and a second filter' disclosed in line 8 of the claim?

In line 16 of claim 21, applicant recites "a common port". How does this port related to the 'common port' disclosed in line 9 of the claim?

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 5, 6, 8-10, 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maekawa et al in view of Hirabayashi US patent 6,914,500 in further view of Koes et al US Patent 7,364,672.

With regards to claims 1 and 10, Maekawa et al discloses in figure 6 a laminate type high frequency device comprising a core dielectric layer 1d having a first surface and a second surface opposite the first surface; a first patterned metal layer 3a 3b disposed over the first surface of the core dielectric layer and therefore on the first surface of the core dielectric layer via the layer 1c, a second patterned metal layer 4a 4b disposed under the second surface of the core dielectric layer and therefore on the second surface of the core dielectric layer via layer 1e, wherein the first and second metal layers are patterned to form integrated components such that the first and second metal layers interact with one another to form a first resonator 3a 3b and a second resonator 4a ab, a first dielectric layer 1c on the first metal layer opposite the core dielectric layer and a second dielectric layer 1e on the second metal layer opposite the core dielectric layer; and a first laminate layer 1b on the first dielectric layer opposite the first metal layer, and a second laminate layer 1f on the second dielectric layer opposite the second metal layer. With regards to claim 10, the first filter includes the first

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resonator and the second filter includes the second resonator. (Column 12; line 59-62)

The first filter and the second filter are connected by the coupling line 9.

With regards to claim 3, Meakawa et al further discloses a coupling line 9 is coupled to the first stripline resonator 3b close to the coupling line 9 by electromagnetic field coupling. The coupling line 9 is coupled to the second stripline resonator 4a close to the coupling line 9 by electromagnetic field coupling. (Column 12; lines 62-67)

Therefore, the first resonator and the second resonator are electromagnetically coupled.

With regards to claims 5, 6 and 12, Meakawa et al further discloses the first and second resonators are stripline transmission lines.

With regards to claims 8 and 14, Meakawa et al further disclose a first shielding layer 2a on the first laminate layer opposite the first dielectric layer and a second shielding layer 2b on the second laminate layer opposite the second dielectric layer.

With regards to claims 9 and 15, Meakawa et al further discloses capacitive electrodes 5 and 6 on the first and second laminate layers, respectively. (column 13; line 19-20 and line 30) Examiner considers the first and second resonator to inductors, since the resonator on composed of striplines which inherently have an inductance. Therefore, the integrated components include both capacitor and inductor elements.

Thus, Maekawa et al is shown to teach all the limitations of the claims with the exception of the core dielectric layer being composed on liquid crystal polymer and the first and second dielectric layer being composed of prepreg.

Hirabayashi et al teach a resin layer 5a constituting the core board 5 is made of a dielectric insulating material having low $\tan \delta$ at a low dielectric constant, that is, an

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excellent high-frequency characteristic. Specifically, the resin layer 5a can be made of liquid crystal polymer. (Column 5; line 56-64)

Therefore, one of ordinary skill in the art would have found it obvious to replace the general core dielectric layer with a liquid crystal polymer as taught by Hirabayashi et al.

The motivation for this modification would have been to provide a dielectric layer having a low $\tan \delta$ at a low dielectric constant, which provided the advantageous benefit of excellent high-frequency characteristic.

Koes et al teach a low loss prepreg comprising a combination of a first component (i.e., a low loss, low dielectric constant, and hydrocarbyl thermoplastic resin), a second component (i.e., a component which is capable of cross linking to produce a thermoset in the presence of the first component), a free radical source, and optionally, one or more additives and/or diluents. Invention compositions can be prepared from widely available and inexpensive starting materials. As a result, invention compositions not only provide fabricated articles having outstanding performance properties, in addition, the cost of producing the resulting articles compares quite favorably with the cost of making competitive materials which require the use of more expensive, less readily available starting materials. Also provided in accordance with the present invention are prepregs prepared from invention compositions, laminated sheets prepared from the above-described prepregs, printed wiring boards, methods of making each of the above, and the like. (Abstract)

Therefore, one of ordinary skill in the art would have found it obvious to replace the general first and second dielectric layers with layer formed of prepreg composition as taught by Koes et al.

The motivation for this modification would have been to provide a dielectric layers with the advantageous benefits of outstanding performance properties and reduced cost of production.

Allowable Subject Matter

Claims 2, 4, 7, 11, 13 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

White et al US Patent 6,900, 708 discloses an integrated passive device fabricated utilizing multilayers organic laminated (figure 2c).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KIMBERLY E. GLENN whose telephone number is (571)272-1761. The examiner can normally be reached on Monday-Friday 7:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571)-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**/BENNY LEE/
PRIMARY EXAMINER
ART UNIT 2817**

Kimberly E Glenn
Examiner
Art Unit 2817

September 17, 2009
/K. E. G./
Examiner, Art Unit 2817